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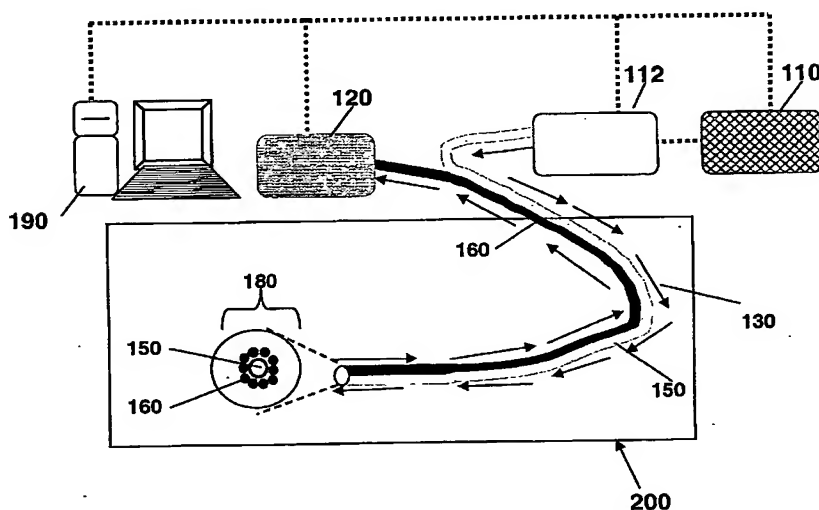
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[Continued on next page]

(54) Title: **CATHETER-BASED MID-INFRARED REFLECTANCE AND REFLECTANCE GENERATED ABSORPTION SPECTROSCOPY**



(57) Abstract: A catheter based method and apparatus for reflectance generated absorption spectral analysis of chronic inflammatory vascular conditions such as seen with atherosclerotic plaque within a blood vessel or other body cavity or compartment. The use of a bright mid range infrared light (mid-IR) source yields detectable reflected optical signals that may be sampled from an area smaller or larger than the typical diameter of a mammalian cell. The mid-IR light is delivered at selected mid-infrared wavenumbers. Using the apparatus and methods, the reflectance spectra and reflectance generated absorption spectra of a target tissue can be compared to reference spectra to identify and distinguish normal epithelium from tissue containing physiological markers indicative of vascular disease or other inflammatory conditions.

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